November 16, 2020

Jim Zolnierek
Illinois Commerce Commission
527 E. Capitol Avenue
Springfield, IL 62701

Via Email: jim.zolnierek@illinois.gov

Re: Initial Comments of Greenlots in Docket No. 20-NOI-03

Dear Mr. Zolnierek:

Greenlots is pleased to submit these initial comments in response to the Illinois Commerce Commission's (the "Commission" or "ICC") *Notice of Inquiry Regarding Rate Design and Affordability with respect to Transportation Electrification and Other Beneficial Electrification* ("Notice of Inquiry" or "NOI") initiated on August 19, 2020 in the above-referenced proceeding.

About Greenlots

Greenlots is a leading provider of electric vehicle ("EV") charging software and services committed to accelerating electric transportation in Illinois, and a wholly owned subsidiary of Shell New Energies.

Greenlots' software, services and expertise empower industries across the globe to deploy EV charging infrastructure at scale, connecting people in a safer, cleaner, and smarter way. The Greenlots network supports a significant percentage of the direct current fast charging ("DCFC") infrastructure in North America, and an increasing amount of Level 2 infrastructure. Greenlots' smart charging solutions are built around an open standards-based focus on future-proofing while helping site hosts, utilities, and grid operators manage dynamic EV charging loads and improve system efficiency.

In Illinois, Greenlots provides the software management platform for a number of EV charging deployments across the state. Greenlots serves on the board of the Alliance for Transportation Electrification and is an active member of the Chicago Area Clean Cities Coalition, Midcontinent Transportation Electrification Collaborative, Advanced Energy Economy, and a number of other organizations committed to advancing electric transportation across Illinois, the Midwest and beyond.

General Comments

Electric utilities and their regulators have critically important roles to play to support and shape the electrification of our transportation sector. Actions the Commission takes (or doesn't take) will have a direct bearing on the achievement of state goals, such as Governor Pritzker's vision

for the deployment of 750,000 EVs by 2030.[1] Greenlots commends the Commission for its ongoing interest in transportation electrification ("TE") and a number of related regulatory topics.

The electrification of transportation represents likely the single greatest opportunity to increase and optimize the utilization of the electric grid to the benefit of all ratepayers, while also reducing emissions and air pollution and delivering significant economic development and cost savings benefits to the state.

It is widely understood that electrification of transportation reduces emissions and improves health outcomes. The Union of Concerned Scientists ("UCS"), a non-profit and non-partisan research organization, compared emissions from gas-powered vehicles and electric vehicles in Illinois by examining several factors such as upstream emissions, electricity generation and transmission loss. Even after factoring in the aggregated emissions involved in producing the electricity an EV consumes, UCS found that a typical EV in Illinois emits roughly half the carbon dioxide than does a new gas-powered vehicle — 2.7 metric tons of CO_2 compared to 4.9 metric tons.[2] This beneficial disparity will continue to grow as more renewable power sources come online and Illinois' generation mix decarbonizes over time.

The cost savings are significant as well. As an example, UCS found that an EV driver in Illinois who charges up at home pays the equivalent of $0.70 per gallon, compared to an average statewide fuel price of $2.74 per gallon.[3] Moreover, rural drivers stand to gain the most – more than $742 annually compared to operating a gas vehicle. These savings that result from avoided fuel costs mean more money in drivers' bank accounts, much of which will have a multiplier effect when spent locally and in communities across the state.

It is unnecessary to more completely address these and other additional benefits of TE in these comments, given the State's already-stated goals to expand EV adoption. However, Greenlots strongly encourages the Commission to recognize that the many benefits of TE – grid optimization, downward pressure on rates, pollution and emissions reduction, health benefits, job creation, economic development and fuel security – do not happen automatically. These benefits require thoughtful and deliberate planning and programs to realize. Leveraging electric utilities to design effective rates, and further to address significant widespread barriers to TE such as lack of accessible charging infrastructure, high upfront infrastructure costs and a lack of

[1] Office of Governor J.B. Pritzker. Aug. 21, 2020. Putting Consumers & Climate First: Governor Pritzker's Eight Principles for a Clean & Renewable Illinois Economy. https://www2.illinois.gov/IISNews/21974-Putting_Consumers_Climate_First-Governor_Pritzkers_Eight_Principles_for_a_Clean_Renewable_Illinois_Economy.pdf at pg. 9.
[2] Union of Concerned Scientists. June 2019. Electric Vehicle Benefits for Illinois. https://www.ucsusa.org/sites/default/files/attach/2019/04/State-Benefits-of-EVs-IL.pdf
[3] *Id.*

consumer awareness, is therefore both appropriate and necessary, and are important building blocks to follow from the instant inquiry.

Responses to Topics

Our comments below address at a high level several of the key topics identified in the NOI and are intended to be broadly applicable to a number of the specific customer segments referenced therein.

EV Rate Design Principles (A.13)

1. Price should align with cost. System-level efficiency is likely the greatest prize for ratepayers associated with EV charging. Such efficiency is best realized when a customer's price for charging reflects the cost of the electricity on the grid. Aligning price with cost creates economic incentive to charge during off-peak periods when electricity is more plentiful and less expensive, to minimize new demand spikes which may increase the cost of electricity for all ratepayers, and to leverage software to dynamically manage load in real time. In this way, cost-reflective pricing can lead to downward pressure on rates for the benefit of all ratepayers. Therefore Greenlots sees cost-reflective electricity prices as a core principle of rate design.

2. Rates should be jurisdiction-specific and allow flexibility. While EV charging data may indicate certain trends in the aggregate, no two utility service geographies are identical, nor are the EV drivers who charge there. While certain general approaches to EV charging rate design may have broad applicability for multiple service territories, they can all benefit from and be improved by a more nuanced understanding of charging patterns and projections within each territory. Greenlots therefore encourages the development of time-varying rates to be based on jurisdiction- and service territory-specific load shapes and use cases. Greenlots further encourages the Commission to consider rate designs that enable flexibility and maximize driver and site host participation as EV load grows in Illinois and peaks and usage patterns shift.

3. Leverage technology to amplify the value of rate design. While time-varying rates are an often appropriate and valuable first step to send price signals to drivers, Greenlots believes a greater emphasis on software to manage charging best maximizes benefits to ratepayers. Indeed, when combined with rate design, technology has the potential to significantly amplify the benefits of those rates for drivers and ratepayers alike. Greenlots views an EV rate as a passive instrument from the utility's standpoint – but one that requires customer awareness and active customer behavior change. On the other hand, technology-based managed charging allows the utility or site operator/host to more actively manage load while enabling a more user-friendly, "set it and forget it" driver experience, even in the context of public DC fast charging.

EV Use Impacts On Grid Costs (A.11)

More EVs charging on the grid increases electric load, which in turn spreads out fixed system costs across greater usage of electricity, thereby creating the potential to apply downward pressure to rates for all ratepayers, not just EV drivers. The key determinant is when, where and how the charging occurs. At grid scale, charging that adds to coincident peak load can require dispatch of more costly generation assets, thereby applying upward pressure to rates. Even at a more localized neighborhood scale, unmanaged EV charging can stress system capacity and require upgrades to transformers and other aspects of the distribution system. Indeed, a recent report that examined the economic impact of EV adoption in Indiana found that "scenarios with high adoption and charging of EVs result in large peaks that require substantial new generation capacity and higher system costs," but noted the "study did not look at rate design and how it might impact results. This is especially important for the timing of EV charging and the associated impact on utility infrastructure."[4]

Managing charging is imperative not only to avoid costs but to add value for ratepayers. A recent analysis by Synapse Energy Economics examined costs and benefits associated with utility support of electric transportation from 2012 through 2019 by two large investor-owned utilities, Pacific Gas & Electric and Southern California Edison. The study found that those two utilities' electric transportation programs realized in excess of $600 million in direct revenues, not including broader societal benefits, far in excess of the total costs associated with the programs.[5] Managing load by incentivizing drivers to charge during off-peak times and by leveraging smart technology significantly amplifies the ratepayer benefits that TE can deliver.

One way in which technology can serve as an effective complement to rate design is by smoothing load around time of use ("TOU") rate periods. Though EV-specific TOU rates can be helpful, the static nature of a rate schedule can also introduce new challenges into the system. For instance, if EV drivers return home from work and begin charging at the same time, this could create a new evening peak. Utilities can alleviate this dynamic by leveraging networked chargers to incorporate user preferences such as "charge by" times, cost and other factors, thus distributing the charging across a wider time period.

Though outside the direct scope of this NOI, it is important to also note that technology can be used to manage load not only as a complement to rate design, but as an alternative. As an example, Avista's EV charging pilot launched in 2016 included direct load management functionalities in residential and workplace locations, without an accompanying TOU rate. Avista reported that customers accepted 75% peak load reduction via remote utility control without negative effects on driving habits or satisfaction ratings. Importantly, leveraging a technology-

[4] Indiana Utility Regulatory Commission. Aug. 14, 2020. 2020 Report to the 21st Century Energy Policy Development Task Force. https://www.in.gov/iurc/files/2020 Report to the 21st Century Energy Policy Development Task Force.pdf at pg. 56.

[5] Synapse Energy Economics. June 2020. Electric Vehicles Are Driving Electric Rates Down. https://www.synapse-energy.com/sites/default/files/EV_Impacts_June_2020_18-122.pdf

driven strategy for this pilot enabled Avista to gain insight on the specific charging load profiles in its service territory as adoption grew over the course of the pilot.[6]

Metering related to EV charging is also becoming increasingly relevant from a cost and value perspective. Embedded meters within smart chargers can facilitate the delivery of many of the same data collection and load disaggregation services as separate utility grade meters leveraging advanced metering infrastructure (AMI), often at less cost. Moreover, embedded EV charging meters are often integrated into charging station firmware, thereby enabling software-based managed charging. This unlocks significantly more load control and other functionalities than AMI alone can provide. Much like the foregoing discussion of rates and technology, embedded EV charging meters can also complement building or facility meters that utilize AMI. Still, when addressing the question of how to capture charging data in the context of time-varying rates, regulators should carefully consider strategies that leverage smart charging software and embedded smart-charging meters.

Commercial Charging Station Providers (A.8)

The business case to deploy, own and operate non-residential EV charging stations remains challenging at best, and will continue to be until EV adoption increases substantially. Demand charges often constitute the single biggest operating expense for public charging providers and site hosts. To the extent that demand charges can be mitigated or offset, it will help mitigate operating losses in the near term. This in turn can lead to expanded deployment of public DCFC which is beneficial to increase EV adoption during this early stage of the EV market.

However, when considering short-term, rate-focused modifications to address the economic challenge of demand charges, it is important to bear in mind that the beneficial impact on rates that managed EV charging enables is one of the highest benefits of transportation electrification. Non-cost-reflective EV charging rates such as demand charge credits or incentives can potentially diminish this underlying value that EV charging has to offer ratepayers.

As discussed earlier more broadly, rate-focused solutions are not the only approach to address the economics of commercial public charging; technology-based load management can also be leveraged. As an example, in Vermont, Green Mountain Power's ChargeFast pilot for public DCFC requires participants to engage with the utility on load management strategies, with the goal of developing tools to address demand charges in such a way as to obviate the need for fundamental changes to rate design.[7] Stations will remain available during peak events, and Green Mountain Power will work with station operators to determine an acceptable level of charging to achieve peak-related savings without materially impacting the duration of a charging session.

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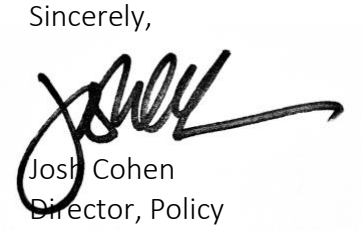
[6] Avista Corp. October 18, 2019. Electric Vehicle Supply Equipment Final Report. https://myavista.com/-/media/myavista/content-documents/energy-savings/electricvehiclesupplyequipmentpilotfinalreport.pdf at pp. 5-6.
[7] *See:* https://greenmountainpower.com/rebates-programs/helping-others/charge-fast/

Conclusion

Greenlots commends the Commission for its ongoing interest in electric transportation, appreciates this opportunity to offer these comments, and looks forward to continuing to participate in this and related proceedings.

Sincerely,



Josh Cohen
Director, Policy